Abstracts

Linearly Single Polarization Fibers with Zero Polarization Mode Dispersion

The optimum waveguide structure for linearly single polarization fibers, which satisfies the large modal birefringence and the zero polarization mode dispersion simultaneously, has been investigated. The basic waveguide structure is the single-mode optical fiber that has an elliptical core and stress-applying parts with a different expansion coefficient from that of the cladding. Waveguide parameters, such as index difference, core ellipticity, and cutoff wavelength, are first determined to obtain highly birefringent fibers with $B = 1 \times 10^{-5}$ or $B = 5 \times 10^{-5}$. The structure of the stress-applying parts that provides zero polarization mode dispersion is then determined.

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